
VALIDATION REPORT

**GeolIngenieria Ingenieros Consultores,
S.A**

**Addition of a power generation
micro unit at the 5 de Noviembre
Power Plant**

SGS Climate Change Programme

SGS United Kingdom Ltd
SGS House
217-221 London Road
Camberley Surrey
GU15 3EY
United Kingdom

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Addition of a power generation micro unit at the "5 de Noviembre Power Plant"				
Organisation:		Client:		
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Summary:				
<p>Geolingenieria Ingenieros Consultores, S. A. has commissioned SGS to perform the validation of the project: Addition of a power generation micro unit at the "5 de Noviembre Power Plant".</p> <p>Methodology used: AMS ID</p> <p>Version and Date: Version 13 - December 2007</p> <p>The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.</p> <p>The report is based on the findings of document reviews, the stakeholder consultation process and responses from the project participants to the findings raised in this report.</p> <p>The report and the annexed validation describes a total of 7 findings which include:</p> <ul style="list-style-type: none"> • 6 Corrective Action Requests; • 9 New Information Requests; and <p>All findings have been closed out satisfactorily the project will be recommended to the CDM Executive Board with a request for registration.</p>				
Subject:				
CDM Validation				
Validation Team:				
Lead Assessor – Emilio Doens		<input checked="" type="checkbox"/> No Distribution (without permission from the Client or responsible organisational unit)		
Local Assessor – Mayra Caradec				
Technical Review:		Trainee Technical Reviewer:		
Date: 20-11-2008, 20-02-2009 and 27-05-2009		Name: N/A		
Name: Vikrant Badve		<input type="checkbox"/> Limited Distribution		
Authorised Signatory:				
Name: Siddharth Yadav		<input type="checkbox"/> Unrestricted Distribution		
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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CEL	Comisión Ejecutiva Hidroeléctrica del Río Lempa
CER	Certified Emission Reduction
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DNA	Designated National Authority
DOE	Designated Operational Entities
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IETA	International Emissions Trading Association
IPCC	Intergovernmental Panel on Climate Change
ISHC	International Stakeholder Consultation
kWh	Kilo Watt hour
LoA	Letter of Approval
MARN	Ministry of Environment and Natural Resources of El Salvador
MoC	Modalities of Communication
MoV	Means of Verification
MP	Monitoring Plan
NGO	Non-Governmental Organization
NIR	New Information Request
ODA	Official Development Assistance
PDD	Project Design Document
PP	Project Participant
SIGET	General Supervision of Electricity and Telecommunications of El Salvador
SWM	Salvadorian electric Wholesale Market
UNFCCC	United Nations Framework Convention on Climate Change

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1. Validation Opinion

SGS United Kingdom Ltd has been contracted by GeoIngenieria Ingenieros Consultores, S. A. to perform a validation of the project: Addition of a power generation micro unit at "5 de Noviembre Power Plant" in El Salvador.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

SGS reviewed of the project design documentation, using a risk based approach and conducted follow-up interviews.

By displacing electricity generation produced by fossil fuel with a energy source based on hydro power the project will consist in the construction and operation of a new electricity generation micro unit with an installed capacity of 0.5 MW therefore the project activity will result in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project correctly applies methodology AMS ID version 13. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 10,843 tCO₂e over a 7-year crediting period, averaging **1,549 tCO₂e** annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC.

Signed on Behalf of the Validation Body by Authorized Signatory



Signature:

Name: Siddharth Yadav

Date: 1st June 2009

2. Introduction

2.1 Objective

GeolIngenieria Ingenieros Consultores, S. A. has commissioned SGS to perform the validation of the project: Addition of a power generation micro unit at the “5 de Noviembre Power Plant” with regard to the relevant requirements for CDM project activities. The purpose of a validation is to have an independent third party assess of the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Certified Emission Reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

2.3 GHG Project Description

The 5 de Noviembre Power plant uses electricity generated by their five turbines for their operations. At the moment the electricity supplied to the grid is less than the electricity they could send, the project activity consist in the addition of a micro unit with an installed capacity of 0.5 MW, The addition of this new unit will allow the plant as a whole to deliver an extra 2,160 MWh per year to the Salvadorian National grid, located on the Lempa River, approximately 88 km Northeast from San Salvador city, capital of El Salvador between the border of the departments of Cabañas and Chalatenango. The project activity shall displace electricity generation produced by fossil fuel with an energy source based on hydro power, in order to reduce greenhouse gas emissions (GHG).

2.4 The Names and Roles of the Validation Team Members

Name	Role	Affiliate
Emilio Doens	Lead Assessor	SGS Panama
Mayra Caradec	Local Assessor	SGS Panama

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

A site visit is usually required to verify assumptions in the baseline.

A site visit was performed between 06/05/2008 – 08/05/2008 and the results are summarized as separate checklist as Annex 1. The lead assessor was also involved to confirm the statements addressed in the PDD through review of documents, direct contacts with key stakeholders (including the project developers and Government representatives in the host country).

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). New Information Request (NIR) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex **A.1** to this report

3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

- Mistakes have been made with a direct influence on project results;
- Validation protocol requirements have not been met; or
- There is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex 1). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

4. Validation Findings

4.1 Participation Requirements

The Host Party of the proposed project activity is El Salvador. El Salvador has ratified the Kyoto protocol on 30 November 1998. Initially Host country approval from Salvadorian DNA was not provided by the project and hence CAR #1 was raised. In response to CAR #1 the project proponent submitted a copy of Letter of Approval from DNA (dated on May 28, 2008; official letter N° MARN-DGPN-185/2008 /Ref.2/), the LoA was checked and verified by the assessment team and found to be correct.

CAR #1 is closed out.

The Project Participant for the CDM proposed project activity as is stated in the PDD is Comisión Ejecutiva Hidroeléctrica del Río Lempa (CEL). Initially the Statement on the Modalities of Communication with the Executive Board and the UNFCCC Secretariat (MoC) was not provided by the project and hence NIR #2 was raised. In response to NIR #2, the project participant submitted a copy of this statement dated 30th June 2008 /Ref.3/. The statement was verified by the assessment team and found to be sufficient.

NIR (2) was close.

4.2 Project Design

The Project Design Document (PDD) was written following the version 5 of Guidelines for Completing the Simplified Project Design Document (CDM-SSC-PDD) and the form for Proposed New Small Scale Methodologies (CDM-SSC-NM) hence the format of the present PDD was checked against it. The current version of CDM-PDD template, version 4, was correctly applied.

The proposed project activity PDD version 1 dated of 07/04/2008/Ref.1/ was published for comments from 23rd April 2008 to 22nd May 2008. A version 2 dated of 20/06/2008 /Ref.2/ was submitted with the changes and clarifications requested through CARs and NIRs raised during project assessment.

The project consists in the incorporation of a new electricity generation micro unit with an installed capacity of 0.5 MW to the existing 5 de Noviembre Power Plant which comprises five Francis type turbines power units rated from 18 to 21 MW each, adding up to a total of 99.4 MW. The addition of this new unit will allow the plant as a whole to deliver an extra 2,160 MWh per year to the Salvadorian National grid. The project has an operational lifetime of 25 years.

4.3 Eligibility as a Small Scale Project

The proposed project activity is not a debundled component of a large scale project activity. During the site visit was confirmed that the 5 de Noviembre power plant began its operations in 1954 and the project activity is an addition to the existing run-of-the-river generating plant. The approved methodologies applied for the proposed project activity is AMS ID v13 (Valid from 14 Dec 07 onwards). According with the AMS ID the proposed project activity qualifies as a small-scale project activity. In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units. The project activity consists in the addition of a new micro unit of 0.5 MW to the existing 99.4 MW power plant. This is consistent with the applicability requirement of the AMS ID. Also the micro unit is distinct from the other existing units, since the existing units are rated between 18 to 21 MW each. The types and categories of the proposed project activity are correctly selected and are in accordance with the technology/measure described in the small scale applied methodologies.

4.4 Baseline Selection and Additionality

The project is applying approved methodology AMS ID version 13. The activities included in the project framework cover the construction, operation and maintenance work and the generation of electricity by the new electricity generation micro unit and its connection to the grid.

According to the methodology, the project boundary encompasses the physical and geographical site of the 5 de Noviembre power plant. During site visit SGS, identified the project boundary as the physical and geographical limits of the hydroelectric plant, complying with the information stated in the PDD and the methodology applied. As power sources connected to the National Interconnected Grid were used to the calculation of the grid emission factor, it's included in the spatial extent of the project boundary.

The baseline was determined and the emission factor was calculated following the methodology AMS ID version 13. Please see also Section 3.3 for details.

The project additionality is demonstrated through the application of the general guidelines established in the Attachment A to the Appendix B of the simplified modalities and procedures for small scale CDM project activities.

The total investment of the project represents an amount of 1,432,501 US\$, as established in the PDD (ref.01) and in the financial analysis (ref.06), which was confirmed through the contract signed on 10 November 2008 (ref.22), after the public bid took place on 23 October 2008. The investments associated with the project activity consist on equipment such as: Hydraulic turbine Francis type 558,872.00 US\$, asynchrony generator 375,487.00 US\$, Control Panel and other operating equipments. In the contract page 32 a full table with all the equipment and labor to be considered for the project activity is described. All of which was verified through the contract described above. Also in the contract the price has changed due to the fact that the price established in the PDD 1,432,501 US\$, was the reference value for the public bid. The winner of the bid who signed this contract has established a cost of 1,385,082.00 US\$ + IVA (13%), which yields a total of 1,565,142 US\$. The amount established in the PDD and the financial analysis was not changed since it was considered to be a conservative value. Investments are financed by CEL's equity (Comisión Ejecutiva Hidroeléctrica del Río Lempa), as verified in the page 3 Art. 4 of the contract between CEL and ESGEM worldwide corporation S.A. C.I. (ref.20). In the financial analysis (ref.06) only the investment costs financed by equity from CEL is considered in the cash flow.

According to EB41 Annex 45 guidance, as the project activity generates economic benefits other than CDM related income, a simple cost analysis could not be applied. A benchmark analysis was applied and an IRR (Internal Rate of Return) was used for the project evaluation, which was taken from the Agreement Number 29-E-2007 (ref.17). The agreement from SIGET (Superintendencia General de Electricidad y Telecomunicaciones – Electricity and Telecommunications Agency) establishes a 12% IRR. The value of IRR with CER's revenues ends up at 11.20% which is still under the reference value of 12%, however higher than a value of 9.42% without CER's.

The project estimates a production of 2,160 MWh/year. The project participant has explained that since the additional unit will work 24 hours in the rainy season (6 months) and 12 hours in the dry season (6 months), multiplying the hours of work by the potential power of the unit 0.5MW, it gives you an approximation of 2,160 MWh for the rainy season and 1,080 MWh for the dry season, a total of 3,240 MWh/year. However since in the dry season the water can be processed by the other units and the additional unit will be left to work on peak and rest hours it is not considered to be additional. Then only 2,160 MWh/year is considered to be additional.

The energy price is assumed as 76US\$/MWh, which was verified to be conservative compared to historical values (average value of 2007 is 70 US\$/MWh), as per UT (Unidad de Transacciones S.A. – Transactions Unit) (ref.19). The project participant provided the referenced document and the web address www.ut.com.sv where the documentation could be duplicated by a search engine (selecting period of time "Jan 1st 2007 – Dec 31st 2007"). It was verified following the procedures and calculating once more the average price of energy in 2007 to be 70.07553 US\$/MWh. The value was found to be correct and conservative.

A fiscal retribution of 25% was used, as established by Decree Number 146 (ref.18) which establishes in Art.15 that any institution or autonomous official enterprise has to pay a retribution of 25% of its income. In the same Art. it refers specifically to CEL and ANTEL (National Telecommunication Administration) it only excludes autonomous official enterprise that are in charge of education and social security.

As established in the Guidance on the Assessment of Investment Analysis Version 02, “As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and -10%”, the PP has submitted the following variables to a sensitivity analysis:

- Capital Expenditures
- Additional Generation
- Energy Price
- Maintenance

Variable	Base Value	Variation	IRR
<i>Capital Expenditures</i>	1,432,501	10%	8.45%
		-10%	10.55%
<i>Additional Generation</i>	2,160	10%	10.50%
		-10%	8.29%
<i>Energy Price</i>	76.00	10%	10.56%
		-10%	8.22%
<i>Maintenance</i>	15,000	10%	9.36%
		-10%	9.47%

The variables such as (energy price and additional generation) constitute a 100% of the incomes of the project not considering CDM revenues. The only variable submitted to the sensitivity analysis without an impact over 20% is maintenance, however it was considered since it is a permanent expenditure for the project. Even though the variables were submitted to a sensitivity analysis the IRR did not surpass the 12% reference value.

The value of IRR with CER's revenues ends up at 11.20% which is still under the reference value of 12%, however higher than a value of 9.42% without CER's. The starting date for the proposed project activity was on 14/10/2008, CEL's Executive Board authorized the held the project's second international bid LP04/08 on 14/07/2008 and the offer evaluation process lasts 3 months. The bid's award will be considered the project start date, since only then CEL will commit, for the first time, to expenditures related to the implementation of the project activity.

The economic model applied for the proposed project activity was the following: a NPV (US\$, without CERs) @ 12% = -277,305; an IRR without CERs =9.42%; an IRR considering CERs @ US\$ 16 /tCO₂ =11.20%; and a reference return for energetic projects =12.00%. The value of 12% is established by SIGET to be the reference return for energetic projects as per Agreement Number 29-E-2007 ref. 17.

Project additionality is considered to be clearly justified. Based on the Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities and Investment Barrier Annex 34 of EB 35, it has been demonstrated that the project faces investment barriers and would not occur without the CDM benefits. The project participant has explained that 12% benchmark has been stated by SIGET as a reference return both for private as well as public generators. Although a difference is marked between the two, since public generators have additional concerns, hence the project participant is willing to undertake the project even if it's expected return falls slightly below the reference rate. The 11.20% rate (which includes the income from the sell of CERs), is less than one point below the benchmark and is therefore considered a reasonable return. Project participant has provided SGS with documented evidences related to the above mentioned barriers in support of the statements made in the project PDD.

The LoA for the project activity was received on 28th May 2008 and the MoC was signed on 30th June 2008 while as per section C of PDD project was awarded to the firm in charge of the Engineering, Procurement &

Construction of the project activity through a BID on 14th Oct. 2008. The Project participant has explained that CEL decided to pursue CDM validation before the public bid due to the fact that the CDM revenues are essential for the development of the project activity independently of the firm awarded the construction; this is also proof of CDM consideration. CEL is the owner and operator of the project activity, the firm in charge of the EPC will is not a project participant.

Since the project activity start date was set to be 3 months after the bid on 14th July 2008 which establishes the date as 14th October 2008. For projects which “start date of the project activity is on or after 2nd August 2008 project participant must inform a Host Party DNA and/or the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status”, as per paragraph 2 of Annex 46 EB41 such notification is not necessary, because PDD was published for international stakeholder consultation from 23rd April 2008 to 22nd May 2008.

In conclusion, the barrier analysis with documented evidence has clearly shown that the project is additional.

4.5 Application of Baseline Methodology and Calculation of Emission Factors

The methodology AMS ID version 13 baseline was used as for the project activity. The project is expected to dispatch around 2,160 MWh of electricity per year, with an emissions reduction by 1,549 tCO₂ annually in the baseline scenario. The proposed project activity will have a net reduction of 1,549 tCO₂e for each year in the renewable crediting period. The PDD version 1 /Ref.1/ submitted refers to an emission factor (EF=0.717) determined according to AMS ID version 13 by PP based on the data provides by MARN and SIGET /ref.11/. During the validation assessment SGS verified the information applied in the PDD to calculate the EF and found it to be correct.

Furthermore, as the transfer of the equipment of the station service unit that was taken out of service since June 2002 may imply a possible source of leakage emissions, NIR #3 was raised to request project participants to provide evidence of the fate of this plant. In response to NIR #3 the PP provided a Memorandum of dismantling (Ref. 04) in which it is established that the unit is to be dismantled and set as an exhibition piece in CEL's offices. The memorandum was checked by the assessment team and found to be correct.

NIR #3 was Closed.

4.6 Application of Monitoring Methodology and Monitoring Plan

The selected monitoring methodology is in line with the monitoring methodology AMS ID version 13. The monitoring will involve metering the electricity generated and supplied to the grid. The CO₂ emission reductions due to the project are directly linked to the electricity generated and supplied by the project to the grid. Since the project activity consist in the addition of a micro unit to an existing run-of-river plant, the project participant will measure with two meters the electricity generated by the micro unit, which will be used to corroborate the calculation of the increase in production on the total generation with the following formula: $EG_y = TE_y - WTE_y$, as per the methodology AMS I.D. para.10.

According with the procedures established in CEL's "Integrated Management System" (ISO 9001:2000; ISO 14001:2004; OHSAS 18001:1999) the project developer will implement a management structure where monitoring responsibilities shall be perfectly delimited. The Operation Department's chief will be responsible for monitoring quality control of data, maintenance, calibration of equipments, verification of data and keeping record of the project generation, as well as the implementation of proper QA procedures in all the relevant meters. The information is double checked against receipt of sales and the meters are to be calibrated every 2 years as per UT standards. All the information from this department will be consistent and easily verifiable with all the relevant data from other departments in case an external audit should require it.

The project participant has modified the PDD to add two parameters to be monitored ($WTE_{estimated\ y}$, inf_y - Water inflow to the power station) for the calculations of emission reduction and has added the following explanation on page 18 of the PDD:

$WTE_{estimated}$ is obtained from the relationship between the river's inflow and the electricity generated by the plant. This relationship is depicted in the graphic below.

“The scatter plot shows that there is a strong positive correlation between monthly average energy generation (y-axis) and the river's monthly average inflow (x-axis). However, once the inflow is as high as 200 m³/s, the

plant is working at full capacity and the relation disappears (i.e. it is represented by a nearly flat line). A simple ordinary least squares analysis was performed in order to obtain the equations presented in the graph. As expected, they show a very high R^2 coefficient for the first part and a close to zero R^2 for the second part. Therefore, the equations for estimating¹ the $WTE_{estimated}$ parameter as a function of hydrological conditions are the following:

(8) $WTE_{estimated} = 13,234 + 214.15 \cdot \text{inf}$, for inflows ("inf") of up to 200 m³/s.

(9) $WTE_{estimated} = 49,884 + 5,308 \cdot \text{inf}$, for inflows ("inf") greater than 200 m³/s

The scattered plot has been added to the PDD page 19. The information used for the plot has been submitted in a excel spreadsheet Ref.07 - generation and hydrology.

The auxiliary consumption of the new micro unit as stated by the project participant in the PDD footnote 2 page 3 "The new unit's auxiliary consumption will be negligible since the latter consists of an asynchronous generator (i.e. it has no exciter)."

4.7 Choice of the Crediting Period

According with what is stated in the Glossary of CDM terms the crediting period for a CDM project activity is the period for which reductions from the baseline are verified and certified by a designated operational entity for the purpose of issuance of certified emission reductions (CERs). The crediting period shall not extend beyond the operational lifetime of the project activity. The proposed project activity addressed in PDD section C that the project has an expected operational lifetime of 25 years according with the concession of electricity generation, this was confirmed during the site visit. The crediting period chosen is a renewable crediting period of 7 years; the starting date of the crediting period stated in PDD section C. 2. 1.1 is 01/04/2009 or the project's registration date (Whichever is latter); the operational lifetime of the project is far beyond of the crediting period chosen by the PP for the proposed project activity.

4.8 Environmental Impacts

According with Salvadorian current legislation (Articles 18 and 22 from El Salvador's Environmental Law) Ref.10 it was not necessary to submit an EIA for the proposed project activity. This was confirmed during the site visit.

4.9 Local Stakeholder Comments

During the site visit, the lead assessor confirmed that a public hearing of the proposed project activity took place on February 22, 2008. The stakeholders were invited to the hearing through the announcements in the two major newspapers in El Salvador: "El Diario de Hoy" and "La Prensa Gráfica" on February 15, 2008, one week before the event. According with the attendance list provide by PP around 50 participants attended the stakeholder presentation representing about 35 different organizations and institutions located around the project site and some others around the country. Lead assessor reviewed a summary of the stakeholder's comments during the site visit. The LSHC summary has included the questions made by the stakeholders and questions were very varied. People ask about the benefits for the country from the CER's revenue, the social component of the project activity, the water flow for the new addition and the reforestation of this area and future projects in the vicinity. The questions were addressed and the doubts were clarified. Also a question on other future renewable technologies projects was addressed.

¹ The sample from which the equations were obtained goes from July 2002 to December 2008. The starting date corresponds to the first month without the previous micro unit.

5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

5.1 Description of How and When the PDD was Made Publicly Available

The Project Design Document for this project was made available on the SGS website <http://cdm.unfccc.int/Projects/Validation/DB/2O6THX9ADV1ZTC3I8CL72097U96HR5/view.html> and was open for comments from 24 Apr 08 until 23 May 08. Comments were invited through the UNFCCC CDM homepage

5.2 Compilation of all Comments Received

No comments received.

5.3 Explanation of How Comments Have Been Taken into Account

No comments received.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
07/05/2008	Luis Carlos Henríquez	Manager of Management and Project Finance Department of CEL	General characteristics of the proposed project activity.
07/05/2008	Miguel Dominguez	Management and Project Unit of CEL	General characteristics of the proposed project activity
07/05/2008	Rodolfo Caceres	Production Director of CEL	Technical and engineering subject of the proposed project activity
07/05/2008	Jose Orlando Argueta	Manager of the Environmental Unit of CEL	Environmental aspects of the proposed project activity and Salvadorian environmental legislation
08/05/2008	Jose Magaña	Manager of the Electrical Market Unit of CEL	Salvadorian Electric Wholesale Market
08/05/2008	Rigoberto Salguero	Manager of the Integrated Management System Unit	CEL's "Integrated Management System" (ISO 9001:2000; ISO 14001:2004; OHSAS 18001:1999) and the project management structure.
08/05/2008	William Huevo	Manager of the Operations Unit of CEL	Issues related of the CEL operations

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

- /1/ PDD Version 1, Dated 07/04/2008
- PDD Version 2, Dated 20/06/2008
- PDD Version 3, Dated 05/12/2008
- PDD Version 4, Dated 25/05/2009
- /2/ Letter of Approval dated 28/05/2008
- /3/ Modalities of Communication dated 30/06/2008
- /4/ Memorándum-desuso unidad generadora (Memorandum to dismantle)

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

- /5/ Global Investment Plan (GIP)
- /6/ Update El Salvador Baseline 2007-07 04 08.xls
- UPDATED Additionality Microunidad 1 MAY 09
- /7/ Confirmation invitation List; Attendance List, copy of the newspaper announced
- /8/ Feasibility Study dated March 2004
- /9/ CEL Socio – Environmental Program
- /10/ Environmental Law El Salvador
- /11/ <http://www.siget.gob.sv/documentos/electricidad/estadisticas/boletin20072024.pdf>
- /12/ www.fonaes.gob.sv
- /13/ AMS I.D. version 13
- /14/ <http://www.fonsecaenergia.com>
- /15/ Non-binding best practice examples to demonstrate additionality for SSC project activities" (Annex 34, EB 35)
- /16/ Guidance on the Assessment of Investment Analysis" (version 02 – Annex 45, EB 41).
- /17/ Agreement Number 29-E-2007
- /18/ Decree Number 146
- /19/ Average energy price 2007 UT
- /20/ Contract CEL - EGSEM
- /21/ generation and hydrology

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A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for Addition of a power generation micro unit at the “5 de Noviembre Power Plant”

It serves as a “**reality check**” on the project that is completed by a local assessor from SGS Panama

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
LoA	When PDD was submitted by PP no LoA was provided	Document Review	CAR 1
MoC	Initially the Statement on the Modalities of Communication with the Executive Board and the UNFCCC Secretariat (MoC) was not provided by the project participant	Document Review	NIR 2
Project Description	Regarding with the old unit use after taken out of service	Document review and Site visit	NIR 3
Project Description	In PDD section A.2 is stated that PP is an institution highly committed with local development since year 2000 according its Socio-Environmental Programme (in Spanish, “Programa Socio Ambiental- PSA”)	Document Review	NIR 4
Project Participants	InPDD v 1 section A.3 states that the party involved, El Salvador in this case, wishes to be considered as project participant.	Document Review and Site Visit	CAR 5
Estimated amount of emission reductions during the First Crediting Period	In PDD v1 the table in section A.4.3 was incorrectly filled	Document Review	CAR 6
Additionality	In section B.5. of the PDD the Decree number 146 and SIGET Agreement Number 29-E-2007 are mention but is needed a copy of those documents	Document Review	NIR 7
Baseline	The data used to estimate the ER is derived from official sources. project participant has to provide exact reference for the source of data found in the tables for NCVi and EFi	Document Review	NIR 8

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
Host Party requirements for an Environmental Impact Assessment (EIA)	The PDD states that “In accordance with Articles 18 and 22 from El Salvador’s Environmental Law, the project does not require the preparation of an Environmental Impact Assessment”	Document Review	NIR 9
Stakeholder Consultation	<p>The PDD states that the most relevant stakeholders were invited to the hearing. Section E.1 mentions that <i>“the stakeholder presentation was announced in the two most popular newspapers in El Salvador:</i></p> <p>Section E.1 mentions that <i>“the stakeholder presentation was announced in the two most popular newspapers in El Salvador. Is needed a copy of that</i></p>	Document Review	NIR 9

A.2 Annex 2: Validation Protocol

Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

Requirement	Reference	Comments	Conclusion
1. All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	Marrakech Accords, CDM Modalities §30	El Salvador ratified KP on 30/11/1998. http://maindb.unfccc.int/public/country.pl?country=SV	Y
2. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	Marrakech Accords, CDM Modalities §29 and §30	No Annex 1 Party is involved at this stage but the project would lead to emission reductions, thus assist Annex 1 Party in achieving their commitment a later stage.	Y
3. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	When PDD was submitted by PP no LoA was provided, hence CAR 1 was raised. PP submitted the LoA with reference N° MARN-DGPN_185/2008 dated on 28/05/2008. CAR 1 was closed out The project activity name appeared different in the LoA a revised letter was submitted with the corrected title. CAR 10 was closed out	Y

Requirement	Reference	Comments	Conclusion
4. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	The project was under Stakeholder consultation from: http://cdm.unfccc.int/Projects/Validation/D B/2O6THX9ADV1ZTC3I8CL72097U96HR 5/view.html Starting date and closing date: 23/04/2008 to 22/05/2008 Number of comments received: 0	Y
5. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	The project correctly apply the current PDD template	Y
6. The project participants shall submit a letter on the modalities of communication (MoC) before submitting a request for registration	EB-09 F_CDM_REG form	Initially the Statement on the Modalities of Communication with the Executive Board and the UNFCCC Secretariat (MoC) was not provided by the project participant and hence NIR (2) was raised. In response to NIR (2), project participant submitted a copy of this statement dated June 30, 2008 /Ref.3/ hence the NIR (2) was closed out.	Y
7. For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?		N/A	N/A

Table 2 PDD

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity					
A.1. Project Title					
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	PDD UNFCCC C website	DR	The project title enables to identify the unique CDM activity: Addition of a power generation microunit at the “5 de Noviembre Power Plant”	Y	Y
A.1.2. Are there an indication of a revision number and the date of the revision?	PDD	DR	The indication of a revision number and the date of the revision is: Version 1.0 - 07/04/2008, Version 2.0 - 20/06/2008, Version 3.0 – 05/12/2008	Y	Y
A.1.3. Is this in consistency with the time line of the project's history?	PDD	DR	All is consistent with the project time line.	Y	Y

* MoV = Means of Verification, DR= Document Review, I= Interview



Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.2. Description of the Project Activity					

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.2.1. Is the description delivering a transparent overview of the project activities?	PDD	DR	<p>The description of the project gives a completely general overview in PDD. The project consists in the installation of a new electricity generation micro unit to the existing hydropower plant "5 de Noviembre" this will enable the plant to send its full capacity to the grid.</p> <p>Although the information describes the project in a transparent way, the fate of this equipment: "the station service unit from the plant rated at 625 kVA was taken out of service since June 2002" is not clear. NIR03 was raised to ask project participants to provide information as of the fate of the 625kVA unit.</p> <p>NIR03 was closed out after the project participant provided a letter (memorandum) in which CEL established that the unit will be used as an exhibition piece in CEL's offices. (Ref.04 - Memorandum-desuso unidad generadora)</p> <p>Also in page 3 of the PDD the project participant mentions that CEL (not previously defined) has a Socio- Environmental Program and its main activities are listed. NIR 4 was raised to encourage project participant to provide a copy of the document.</p> <p>NIR 4 was closed out after project participant provided the document (Programa Socio Ambiental – PSA).</p> <p>The description on Section A.2 of the PDD did not provide details of the existing power plant. CAR 10 was closed out after the necessary changes were made to the PDD.</p>	<p>NIR03</p> <p>NIR04</p> <p>CAR 10</p>	<p>Y</p> <p>NIR03</p> <p>Closed Out</p> <p>NIR04</p> <p>Closed Out</p> <p>CAR10</p> <p>Closed Out</p>

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.2.2. Is all information provided in compliance with actual situation or planning?	PDD	DR	All the information provided complies with actual situation. During the site visit was confirms through an interview with key personnel of CEL.	Y	Y
A.2.3. Is all information provided consistent with details provided in further chapters of the PDD?	PDD	DR	All information provided is consistent with details in further chapters of the PDD	Y	Y
A.3. Project Participants					
A.3.1. Is the table required for the indication of project participants correctly applied?	PDD	DR	<p>In PDD Section A.3 states that the party involved, El Salvador in this case, wishes to be considered as project participant. It was clarified during the site visit that since the hydroelectric is owned by the Government project participants had assumed that this constituted that the host country would in consequence be a project participant. Corrections indicating otherwise are required in the PDD.</p> <p>CAR 5 is raised</p> <p>During the site visit was discuss that with PP clarifying despite of CEL is a government agency (self-governing) the host country won't be PP. The table in PDD section A.3 was fixed, clarifying that Host Party was not PP.</p> <p>CAR 5 is closed out</p>	CAR05	<p>Y</p> <p>CAR05</p> <p>Closed-Out</p>
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	PDD	DR	<p>All the information provided is in consistency with details provided by further chapters of the PDD.</p> <p>No Annex 1 Party is involved at this stage but the project would lead to emission reductions, thus assist Annex 1 Party in achieving their commitment a later stage</p>	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4. Technical Description of the Project Activity					
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	PDD	DR	The information provided give clear indication of the location of the project; the geographical coordinates are between 13°59' north and 88°45' west.	Y	Y
A.4.2. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	PDD	DR	In the information provided, give clearly indication that the project participant has an ownership or license to allow them the implementation of the project activity. During site visit was confirm the project participant possesses all licenses and ownership that allow the implementation of the project.	Y	Y
A.4.3. Is the category(ies) of the project activity correctly identified?	PDD UNFCCC Web site	DR	The project activity correctly identified. This project classified into Sector Category 1, Energy industries (renewable/non renewable)	Y	Y
A.4.4. Does the project design engineering reflect current good practices?	PDD	DR	The project design reflects good understanding of the technology applied. The project consists in the installation of a new electricity generation micro unit to the existing hydropower plant "5 de Noviembre" this will enable the plant to send its full capacity to the grid. The technology and environmental design engineering reflect the current good practices.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance and is the explanation how the project will reduce greenhouse gas emission transparent and suitable?	PDD	DR	The project will be an addition of 0.6 MW to an existing hydroelectric plant. The estimated ER is 10,843 tCO ₂ e for a crediting period of 7 years	Y	Y
A.4.6. Is all information provided in compliance with actual situation or planning as available by the project participants?	PDD	DR & Site visit	During the site visit was confirmed that the information provides by PP is in compliance actual project stage of the project.	Y	Y
A.4.7. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	PDD	DR	In section A.4.3 is describes the technology used by project. At the time of the site visits. The technology used by the project is the normal used by the industry.	Y	Y
A.4.8. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	PDD	DR	No the project technology is not likely to be substituted by other or more efficient technologies within the project period.	Y	Y
A.4.9. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	PDD	DR	PP has implemented an integrated management system ISO 14001, ISO 90001, OSHAS 18001, where there are procedures related with the training and maintenance.	Y	Y
▪ Does the project make provisions for meeting training and maintenance needs?	PDD	DR & Site visit	PP has implemented an integrated management system ISO 14001, ISO 90001, OSHAS 18001, where there are procedures related with the training and maintenance.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.10. Is a schedule available on the implementation of the project and are there any risks for delays?	PDD	DR & Site visit	In section, C.1.1 of the PDD version 02 is stated that the starting date for the proposed project activity was on 14/10/2008, CEL's Executive Board authorized the held the project's second international bid LP04/08 on 14/07/2008 and the offer evaluation process lasts 3 months. The bid's award will be considered the project start date, since only then CEL will commit, for the first time, to expenditures related to the implementation of the project activity. In PDD section C.1.2 the lifetime of the project is 25 years	Y	Y
A.4.11. Is the table required for the indication of projected emission reductions correctly applied?	PDD	DR	In PDD v1 the table in section A.4.3 was incorrectly filled, hence CAR 6 was raised. In PDD v2 The table required in section A.4.3 for the indication of projected emission reductions is correctly applied, hence CAR 6 is closed out.	CAR06	Y CAR06 Closed Out
A.5. Public Funding					
A.5.1. Does the information on public funding provided conform with the actual situation or planning as presented by the project participants?	PDD	DR	In PDD section, A.4.4 is stated, "No public funds are involved in the project". During the site visit Local assessor confirm the project does not use Official Development Assistant. The proposed project activity will carried out applying for commercial financing scheme.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.5.2. Is all information provided consist with details provided by further chapters of the PDD (in particular annex 2)?	PDD	DR	In PDD Annex 2 is stated, "No public funds are involved in the project". During the site visit Local assessor confirm the project does not use Official Development Assistant. The proposed project activity will carried out applying for commercial financing scheme.	Y	Y
A.5.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD	DR	No Annex 1 Parties fund will used in the project.	Y	Y
B. Baseline and Monitoring Methodology					
B.1. Choice and Applicability					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	PDD & UNFC CC Web site	DR	The approved methodology applied by the project is AMS.I.D version 13.	Y	Y
B.1.2. Is the baseline methodology the one deemed most applicable for this project?	PDD & UNF CCC Web site	DR	The project activity is a small-scale project with an installed capacity of 0.6 MW and is in accordance with chosen methodology.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.1.3. Is the choice of the methodology correctly justified by the PDD and is the project in conformance with all applicability criteria of the applied methodology?	PDD & UNF CCC Web site	DR	The chosen methodology is correctly justified and the project meets with applicability criteria of the applied methodology.	Y	Y
B.2. Project Boundary					
B.2.1. Are all emission sources and gasses related to the baseline scenario, project scenario and leakage clearly identified and described in a complete manner?	PDD	DR	In the PDD version 1 section B.3. clearly identified and described: The project boundary encompasses the physical and geographical site of the renewable generation source.	Y	Y
B.2.2. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with EB guidance and the underlying methodology?	PDD	DR	The project will be connecting to the National Interconnected Grid of El Salvador.	Y	Y
B.2.3. Are the project's spatial boundaries (geographical) and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	PDD	DR	The project's spatial boundaries and the project system boundaries are clearly defined.	Y	Y
B.3. Identification of the Baseline Scenario					
B.3.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the chosen baseline transparent?	PDD AMS.I. D	DR	As defined by the methodology, the baseline scenario consists of the electricity that, in the absence of the proposed project activity, would have been delivered to the grid by the rest of the existing plants in the system or by new additions to it. In this case the electricity from the grid is 50% from non-renewable sources. All the steps for identifying the baseline where followed.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.3.2. Does the application consider all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations??	PDD	DR	The realistic baseline scenario in this case is the implementation of another Thermal unit to supply the energy that demands the grid. The PDD shows that the six most recent plants that entered the system around 84% are thermal technologies. Although rises in the price of oil the trend is still the implementation of thermal power plants. Only a 16% does not follow the trend and the small addition of this plant is an example.	Y	Y
B.3.3. Is the choice of the baseline compatible with the available data?	PDD	DR I	The selection of the baseline from the possible scenarios is consistent with available data from SIGET (General Administration of Electricity and Telecommunications of El Salvador).	Y	Y
B.3.4. Is conservativeness addressed in the way of identifying the baseline?	PDD	DR	The baseline is identified as per the methodology AMS.I.D "A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system". The emission factor calculated by the PP is of (EF = 0.717 tCO ₂ e/MWh).	Y	Y
B.3.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	PDD	DR	Based on the data available; the steps in the methodology the selected baseline scenario the construction of a thermal power plant (using different kinds of fossil fuels) represent the most likely scenario.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4. Additionality					
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as given by the methodology and by following all the required steps?	PDD	DR	In PDD version 01, The project additionality is demonstrated through the application of the general guidelines established in the Attachment A to the Appendix B of the simplified modalities and procedures for small scale CDM project activities.	Y	Y
B.4.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	PDD	DR	A barrier analysis was conducted by PP. The barrier analyzed was investment. PP gives in the PDD a brief summary of the project's economics (see PDD section B.5).	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
<p>B.4.3. Is the discussion on additionality and the evidence provided consistent with the starting date of the project</p> <p>If the project has started before the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity</p>	PDD	DR	<p>The discussion on additionality and the evidence provided are consistent with the starting date of the project.</p> <p>In section, C.1.1 of the PDD version 02 is stated that the starting date for the proposed project activity was on 14/10/2008, CEL's Executive Board authorized the held the project's second international bid LP04/08 on 14/07/2008 and the offer evaluation process lasts 3 months. The bid's award will be considered the project start date, since only then CEL will commit, for the first time, to expenditures related to the implementation of the project activity.</p> <p>Hence NIR 7 was raised to ask project proponent to provide evidence. The project participant provided both documents, NIR 7 is closed out.</p> <p>Furthermore NIR 13 was raised to ask project participant to clarify the reasoning for the application for the LoA before winning the BID. The PP explained that since CDM revenues are essential for the project activity CEL decided to go ahead independently of which firm be awarded the construction. NIR13 was closed out</p>	<p>NIR07</p> <p>NIR 13</p>	<p>Y</p> <p>NIR07</p> <p>Closed Out</p> <p>NIR 13</p> <p>Closed Out</p>
<p>B.4.4. Is the discussion on additionality consistent with the identification all potential realistic and credible baseline scenarios</p> <p>B.4.5. Do the identified alternative include technologies and practices that include outputs (e.g) cement or services comparable with the proposed CDM project activity</p>	PDD	DR	<p>The additionality discussion is in line with the potential scenario.</p>	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.6. If an investment analysis has been used, has it been shown that the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?	PDD	DR	<p>The investment analysis addressed in PDD shown clearly that the proposed project activity is from the financial point of view less attractive without of CER revenues than the other alternative addressed. As the IRR value 11.16% does not surpass the value of 12% set by SIGET, the project participant explained the difference between the IRR with and without the CER's revenue. Although the value is still slightly under the 12%, it is a higher value from 9.42%. Also as public facility it has additional concerns, such as providing cheap energy, which make the IRR more flexible. NIR11 was closed out.</p> <p>PP provided the source of the benchmark selected in the project activity excel sheet. CAR 15 was closed out</p> <p>A sensitivity analysis was carried out with a range of $\pm 10\%$. The project participant used the suggested in the Guidance on the Assessment of Investment Analysis.</p> <p>NIR 12 was closed out</p>	NIR 11 NIR 12 CAR 15	Y NIR 11 Closed Out NIR 12 Closed Out CAR 15 Closed Out
B.4.7. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	PDD	DR	A barrier analysis was conducted by PP. The barrier analyzed was investment. PP gives in the PDD a brief summary of the project's economics (see PDD section B.5).	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.8. Has it been shown that the project is not common practice?	PDD	DR	The PDD shows that the six most recent plants that entered the system around 84% are thermal technologies. Although rises in the price of oil the trend is still the implementation of thermal power plants. Only a 16% does not follow the trend and the small addition of this plant is an example.	Y	Y
B.4.9. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario	PDD	DR	Based on the information discuss in the PDD, the proposed project activity itself is not a likely baseline scenario. See section B.4.8.	Y	Y
B.5. Application of the Baseline Methodology					
B.5.1. Has the approved methodology been applied correctly for determining baseline emissions ?	PDD AMS.I. D.	DR	The approved methodology AMS.I.D version 13 has been applied correctly for determining BE. A spreadsheet has been provide by PP showing the baseline emission factor (EF=0.717 tCO ₂ e/MWh) The spreadsheet was checked, found correct and according with the AMS.I.D.	Y	Y
B.5.2. Has the approved methodology been applied correctly for determining project emissions ?	PDD	DR	The project emissions have been identified for this type of project to be zero.	Y	Y
B.5.3. Has the approved methodology been applied correctly for determining leakage ?	PDD	DR	The leakage has been identified for this type of project to be zero.	Y	Y
B.5.4. Where applicable, has the approved methodology been applied correctly for the direct calculation of emission reductions	PDD	DR	The approved methodology has been applied correctly for the direct calculation of emission reductions. In the PDD version 2 is referring to an emission factor (EF=0.717 tCO ₂ e/MWh) determined according to AMS.I.D by the PP	Y	Y
B.5.5. Have all the methodological choices been explained, have they been properly justified and are they correct	PDD AMS.I. D	DR	All the methodological choices have been explained, they have been properly justified and they are correct.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.5.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	PDD	DR	No uncertainties in GHG emissions have been addressed in the documentation provided.	Y	Y
B.6. Ex-ante Data and Parameters Used					
B.6.1. Are the data provided in compliance with the methodology?	PDD	DR	The data are provided in compliance with the methodology.	Y	Y
B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	PDD	DR	The data used to estimate the ER is derived from official sources. NIR 8 was raised to ask project participant to provide exact reference for the source of data found in the tables for NCVi and EFi. NIR 8 was closed out after the necessary changes were made in the PDD v2.	NIR08	Y NIR08 Closed-Out
B.6.3. Is the vintage of the baseline data correct?	PDD	DR	The vintage of data for the baseline calculation by PP were from 2005; 2006; and 2007 that vintage can be considered as being conservative	Y	Y
B.7. Calculation of Emissions Reductions					
B.7.1. Has the approved methodology been applied correctly for determining emission reductions ?	PDD	DR	The approved methodology has been applied correctly for determining emission reductions. A spreadsheet with the EF calculation has been provide by PP founded that baseline emission factor was calculated correctly; and applied correctly for determining emission reductions.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	PDD	DR	<p>The emission reduction calculations are documented in a complete and transparent manner. PP presented the PDD and spreadsheets with necessary information for calculations.</p> <p>The CER's spreadsheet did not provide a yearly estimation of ER's as presented in the PDD. The PP added a table with the yearly estimations.</p> <p>CAR 14 was closed out</p>	CAR 14	Y CAR 14 Closed Out
B.7.3. Have conservative assumptions been used to calculate emission reductions?	PDD	DR	The information and documents have been used for calculation of emission reductions by PP; these are official documents or links that permit to conclude only conservative assumptions.	Y	Y
B.7.4. Is the projection based on provable input parameter?	PDD	DR	The data used to calculate EF is official dispatch data for El Salvador therefore the projection is based on very real input.	Y	Y
B.7.5. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	PDD	DR	The ER projection is based on same procedures for later monitoring because according with the AMS.I.D. for monitoring indicate that for this kind of project shall consist of metering the electricity generated by the renewable source..	Y	Y
B.7.6. Is the calculation of the emission reduction correct?	PDD	DR	The formulas applied to estimate the ER are correct. A spreadsheet with the EF calculation has been provide by PP founded that baseline emission factor was calculated correctly; and applied correctly for determining emission reductions	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.8. Emission Reductions					
B.8.1. Will the project result in fewer GHG emissions than the baseline scenario?	PDD	DR	The project implementation will result in fewer GHG emissions than the baseline scenario.	Y	Y
B.8.2. Is the form/table required for the indication of projected emission reductions correctly applied?	PDD	DR	The form required for the indication of projected emission reductions is correctly applied	Y	Y
B.8.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	PDD	DR	The starting date of the project activity and the crediting period are in line with the time line.	Y	Y
B.9. Monitoring Methodology					
B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameter to be monitored and further information provided by the PDD? Are all parameters and data that is available at validation consistent with the approved methodology	PDD	DR	In PDD version 01 section B.7.2 is described the monitoring plan to apply by the project.	Y	Y
B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?	PDD	DR	The monitoring methodology applies consistently the option selected for monitoring baseline emissions that is to measure the electricity delivered to the grid.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.10. Data and Parameters Monitored					
B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	PDD	DR	In PDD version 02 section B.7.2 and Annex 4 is clearly specified that procedures will detail the organization, control and steps required for CDM data and record keeping arrangements.	Y	Y
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	PDD	DR	In PDD version 01 section B.7.1 stated that project GHG indicator is the Electricity generation from the proposed project activity. That indicator is reasonable and in conformance with the requirements set by AMS.I.D.	Y	Y
B.10.3. Will it be possible to determine the specified project GHG indicators?	PDD	DR	The GHG indicator chosen can be monitored and the correspondent data can be monitored and its accuracy can be verified.	Y	Y
B.10.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	PDD	DR	The information given for the monitoring variable by the table B.7.1 Electricity delivered to the grid is sufficient to ensure the verification of a proper implementation of the monitoring plan.	Y	Y
B.10.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	PDD	DR	The information given for the monitoring electricity delivered to the grid by the presented table B.7.1 is sufficient to ensure the delivery of high quality data free of potential for biases changes in data records.	Y	Y
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	PDD	DR	The monitoring plan addressed in the PDD is in line with the good practices and it has been developed to ensure well organization of the collection and archive of complete and reliable data.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD	DR	All formulae are used to determine project emission clearly indicated and in compliance with the monitoring methodology.	Y	Y
B.11. Quality Control (QC) and Quality Assurance (QA) Procedures					
B.11.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	PDD & Site Visit	DR I	In PDD section B.7.2 is addressed that PP has implemented an integrated management system (ISO 9001:2000; ISO 14001:2004; OHSAS 18001:1999); where are included procedures for the CDM component (data monitoring, handling, archiving, internal audits, etc). During the site visit this was confirmed through an interview with the manager of the management system	Y	Y
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	PDD & Site Visit	DR I	The belonging determination of uncertainty levels done correctly for the electricity delivered to the grid in a correct and reliable and conservative manner.	Y	Y
B.11.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	PDD & Site Visit	DR I	In PDD section B.7.2 is addressed that PP has implemented an integrated management system (ISO 9001:2000; ISO 14001:2004; OHSAS 18001:1999); where are included procedures for the CDM component (data monitoring, handling, archiving, internal audits, equipment maintenance, etc). During the site visit this was confirmed through an interview with the manager of the management system	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	PDD & Site Visit	DR I	It is ensured that data will be bound to national reference standards. The records of the generated electricity will be stored in the automatic recorder at the project and at National Dispatch Center, which is responsible of the dispatch of generation units in the whole country.	Y	Y
B.11.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	PDD & Site Visit	DR I	The data provisions not represent a potential conflict of interests.	Y	Y
B.12. Operational and Management Structure					
B.12.1. Is the authority and responsibility of project management clearly described?	PDD	DR	In PDD section B.7.2 is given a chart which shown the Operational and Management Structure of the project	Y	Y
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD	DR	In PDD section B.7.2 is stated that the Operation Department's chief will be responsible for monitoring and keeping record of the project generation, as well as the implementation of proper QA procedures in all the relevant meters.	Y	Y
B.12.3. Are procedures identified for training of monitoring personnel?	PDD	DR	In PDD section B.7.2 is stated that the monitoring personnel will be trained according with the CEL's Personal Training Procedures PRA 22-01	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.13. Monitoring Plan (Annex 4)					
B.13.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	PDD	DR	The monitoring plan described in the PDD in a manner clearly addressing the features of the CDM activity.	Y	Y
B.13.2. Does the monitoring plan completely describes all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	PDD	DR	The monitoring plan described in the PDD addressing the steps and measures for monitoring the parameters required by AMS.I.D.	Y	Y
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	PDD	DR	In PDD Section B.7.2 is stated the type of meters to be installed will be provided with built-in registers, and generation data will be ready to download in site or via modem.	Y	Y
B.13.4. Are procedures identified for calibration of monitoring equipment?	PDD	DR	PP has a procedure for equipment calibration (procedure PRO 41-06)	Y	Y
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	PDD	DR	In PDD section B.7.2 is addressed that PP has implemented an integrated management system (ISO 9001:2000; ISO 14001:2004; OHSAS 18001:1999); where are included procedures for the CDM component (data monitoring, handling, archiving, internal audits, equipment maintenance, etc). During the site visit this was confirmed through an interview with the manager of the management system	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.13.6. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	PDD	DR	In PDD section B.7.2 is addressed that PP has implemented an integrated management system (ISO 9001:2000; ISO 14001:2004; OHSAS 18001:1999); where are included procedures for the CDM component (data monitoring, handling, archiving, internal audits, equipment maintenance, etc). During the site visit this was confirmed through an interview with the manager of the management system	Y	Y
B.13.7. Are procedures identified for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems??	PDD	DR	In PDD section B.7.2 is addressed that PP has implemented an integrated management system (ISO 9001:2000; ISO 14001:2004; OHSAS 18001:1999); where are included procedures for the CDM component (data monitoring, handling, archiving, internal audits, equipment maintenance, etc). During the site visit this was confirmed through an interview with the manager of the management system	Y	Y
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	PDD	DR	In PDD section B.7.2 is addressed that PP has implemented an integrated management system (ISO 9001:2000; ISO 14001:2004; OHSAS 18001:1999); where are included procedures for the CDM component (data monitoring, handling, archiving, internal audits, equipment maintenance, etc). During the site visit this was confirmed through an interview with the manager of the management system	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	PDD	DR	In PDD section B.7.2 is addressed that PP has implemented an integrated management system (ISO 9001:2000; ISO 14001:2004; OHSAS 18001:1999); where are included procedures for the CDM component (data monitoring, handling, archiving, internal audits, equipment maintenance, etc). During the site visit this was confirmed through an interview with the manager of the management system	Y	Y
B.14. Baseline Details					
B.14.1. Is there any indication of a date when determine the baseline?	PDD	DR	The baseline and monitoring methodology application study was completed on 14/03/2008 by Geoingeniería Ingenieros Consultores S.A.	Y	Y
B.14.2. Is this in consistency with the time line of the PDD history?	PDD	DR	The PDD version 1 is dated 07/04/2008, so the baseline is consistent with PDD history	Y	Y
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	PDD	DR	All data required is provided in a complete manner by annex 3 of the PDD.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
C. Duration of the Project / Crediting Period					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	PDD	DR	In section, C.1.1 of the PDD version 02 is stated that the starting date for the proposed project activity was on 14/10/2008, CEL's Executive Board authorized the held the project's second international bid LP04/08 on 14/07/2008 and the offer evaluation process lasts 3 months. The bid's award will be considered the project start date, since only then CEL will commit, for the first time, to expenditures related to the implementation of the project activity.and in section C.1.2. the lifetime of the micro unit is of 25 years of operation.	Y	Y
C.1.2. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	PDD	DR	In Section C.2.1.1. the start of crediting period is 01/01/2009 with a renewable crediting period of 7 years.	Y	Y
C.1.3. Does the project's operational lifetime exceed the crediting period	PDD	DR	The lifetime of the project is not exceeded by the crediting period.	Y	Y
D. Environmental Impacts					
D.1.1. Does the project comply with environmental legislation in the host country?	PDD	DR	The project complies with environmental legislation in the host country. For this type of project is not required an EIA	Y	Y
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	PDD	DR	The environmental impacts of the project activity are negligible since is the installation of a micro unit to an existing power plant.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	PDD	DR	The PDD states that “In accordance with Articles 18 and 22 from El Salvador’s Environmental Law, the project does not require the preparation of an Environmental Impact Assessment”, NIR 9 was raised to ask project participant to provide this document. After the project participant provided the evidence, NIR 9 was closed out.	NIR09	Y NIR09 Closed-Out
D.1.4. Will the project create any adverse environmental effects?	PDD	DR	The project will not create adverse environmental effects.	Y	Y
D.1.5. Are transboundary environmental impacts considered in the analysis?	PDD	DR	No transboundary environmental impacts are considered in the analysis.	Y	Y
D.1.6. Have identified environmental impacts been addressed in the project design?	PDD	DR	Environmental impacts are negligible. See section d.1.2	Y	Y
E. Stakeholder Comments					
E.1.1. Have relevant stakeholders been consulted?	PDD	DR	The PDD states that the most relevant stakeholders were invited to the hearing. 50 persons attended the meeting of 35 different organizations and institutions. NIR 9 was raised to ask project participant to provide evidence such as invitations, attendance list, etc. NIR07 was closed out after sufficient evidence was submitted.	NIR-09	Y NIR-09 Closed-Out

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	PDD	DR	Section E.1 mentions that <i>"the stakeholder presentation was announced in the two most popular newspapers in El Salvador: "El Diario de Hoy" and "La Prensa Gráfica" on February 15th 2008, one week before the event"</i> . Copy of this announcement is required, hence NIR 9 was raised. After project participant provided copy of the newspaper NIR 9 was closed out.	NIR09	Y NIR09 Closed Out
E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	PDD	DR I	For CDM project is not requirement by the local regulation.	Y	Y
E.1.4. Is the undertaken stakeholder process described in a complete and transparent manner?	PDD	DR I	The stakeholder consultation is described in a transparent manner.	Y	Y
E.1.5. Is a summary of the stakeholder comments received provided?	PDD	DR	PP provides a summary of the stakeholder comments	Y	Y
E.1.6. Has due account been taken of any stakeholder comments received?	PDD	DR	All comments and questions were heard and answered in a clear and complete way by CEL's Representative.	Y	Y



References

Reference ID	Title / Description	Comments
Ref.01	PDD Microunidad version 01 dated 07.04.08 PDD Microunidad version 02 dated 20.08.08 PDD Microunidad version 03 dated 05.12.2008 PDD Microunidad version 04 dated 25.05.2009	PDD of the proposed project activity
Ref.02	Letter of Approval dated 28/05/2008	Letter of approval from Host Country
Ref.03	Modalities of Communication dated 30/06/2008	Modalities of communication
Ref.04	Memorándum-desuso unidad generadora	Memorandum in which is established that the generator no in use will not be shipped to another location, but instead used as exhibition in CEL's offices.
Ref.05	Global Investment Plan (GIP)	Global Investment Plan.
Ref.06	Update El Salvador Baseline 2007-07 04 08.xls UPDATED Additionality Microunidad 1 MAY 09	Baseline update.
Ref.07	Confirmation invitation List; Attendance List, copy of the newspaper announced	Stakeholder consultation attendance list, invitation and publications.
Ref.08	Feasibility Study dated March 2004	Feasibility study.
Ref.09	CEL Socio – Environmental Program	Socio Environmental Program
Ref.10	Environmental Law El Salvador	Environmental Law from El Salvador
Ref.11	http://www.siget.gob.sv/documentos/electricidad/estadisticas/boletin20072024.pdf	Source of the electricity statistics.
Ref.12	www.fonaes.gob.sv	Environmental Fund El Salvador
Ref.13	AMS I.D. version 13	Methodology
Ref.14	http://www.fonsecaenergia.com	Fossil Fuel projects
Ref.15	Non-binding best practice examples to demonstrate additionality for SSC project activities" (Annex 34, EB 35)	
Ref.16	Guidance on the Assessment of Investment Analysis" (version 02 – Annex 45, EB 41).	
Ref.17	Agreement Number 29-E-2007	Agreement defining a 12 % benchmark for energy projects.
Ref.18	Decree Number 146	Decree defining 25% of fiscal retribution.
Ref.19	Average energy price 2007 UT	Energy prices for 2007
/20/	Contract CEL - EGSEM	Contract between CEL and the bid winner
/21/	generation and hydrology	Relation Generation/Hydrology

A.3 Annex 3: Overview of Findings

Findings Overview

Findings from validation of: **Addition of a power generation microunit at the “5 de Noviembre Power Plant”**

Each Table below represents a finding from the validation assessment. The findings are numbered consecutively, approximately in the order that they have been identified.

Description of Table:

Type Findings are either New Information Requests (NIR) or Corrective Action Requests (CAR). CARs are items that must be addressed before a project can receive a recommendation for registration. NIRs may lead to the raising of CARs. Observations are included at the end and may or may not be addressed. They are primarily to act as signposts for the verifying DOE.

Issue Details the content of the finding

Ref Refers to the item number in the Validation Protocol

Response Please insert response to finding, starting with the date of entry.

Rows for comments and further response will be appended to the table until the Findings has been addressed to the satisfaction of the Lead Assessor.

Date:	12/06/2008			Raised by:	Emilio Doens		
No.:	01	Type:	CAR	Issue:	Host Country LoA	Ref.:	Section A.3.1
Lead Assessor Comment:					Date: 12/06/2008		
A Corrective Action Request (CAR01) was raised to ask project participant to provide the Letter Of Approval of the Host country.							
Project Participant Response:					Date: 20/06/2008		
The copy in English of the LoA has been submitted to the validator.							
Acceptance and Close out by Lead Assessor:					Date: 10/07/2008		
Information Provided: official letter N° MARN-DGPN-185/2008 /Ref.2/) Information Verified: Salvadorian LoA MARN-DGPN-185/2008					Verified Document Reference: Official Letter N° MARN-DGPN-185/2008 /Ref.2/)		
Reasoning for not acceptance or acceptance and close out: CAR01 CLOSED OUT: project participants have provided the LoA from the host country.							

Date:	12/06/2008			Raised by:	Emilio Doens		
No.:	02	Type:	NIR	Issue:	MoC	Ref.:	Section A.1
Lead Assessor Comment:					Date: 12/06/2008		
A New Information Request (NIR02) was raised to ask project participant to provide the Modalities of Communication.							
Project Participant Response:					Date: 04/07/2008		
MoC was submitted to the validator.							
Acceptance and Close out by Lead Assessor:					Date: 10/07/2008		
Information Provided: In response to NIR (2), project participant submitted a copy of this statement dated June 30, 2008 Information Verified: MoC dated June 30, 2008					Verified Document Reference: Ref.03 - MoC dated June 30, 2008		
Reasoning for not acceptance or acceptance and close out: NIR02 CLOSED OUT: A copy of the Modalities of Communication dated June 30, 2008 was submitted by the Project participant.							

Date:	12/06/2008	Raised by:	Emilio Doens				
No.:	03	Type:	NIR	Issue:	Transfer of equipment stated in section A.2 of PDD	Ref.:	Section A.2.1
Lead Assessor Comment:				Date: 12/06/2008			
Section A.2. Description of the small-scale project activity says: "the station service unit from the plant rated at 625 kVA was taken out of service since June 2002". As the transfer of this equipment may imply a possible source of leakage emissions, project participants are requested to provide evidence the fate of this plant.							
Project Participant Response:				Date: 20/06/2008			
The evidence of the fate of this plant was provided by means of a letter (memorandum) were CEL established that the unit will be used as an exhibition piece in CEL's offices. The Memorandum was handed to the validator.							
Acceptance and Close out by Lead Assessor:				Date: 10/07/2008			
Information Provided: PP submitted a letter where is stated that the old unit will be use as exhibition in PP main offices. Information Verified: Letter stating the use of the generator as exhibition in the office of CEL.						Verified Document Reference: Ref.04 - Memorándum-desuso unidad generadora	
Reasoning for not acceptance or acceptance and close out: NIR03 CLOSED OUT: project participants have provided the Memorandum in which is established that the generator no in use will not be shipped to another location, but instead used as exhibition in CEL's offices.							

Date:	12/06/2008	Raised by:	Emilio Doens				
No.:	04	Type:	NIR	Issue:	Copy of the Socio Environmental Programme as one of the components of the project's contribution to sustainable development	Ref.:	Section A.2.1
Lead Assessor Comment:				Date: 12/06/2008			
The PDD mentions in page 3 that CEL (not previously defined) has a Socio- Environmental Programme and its main activities are listed. Project participants are encouraged to provide copy of this Programa Socio Ambiental - PSA.							
Project Participant Response:				Date: 20/06/2008			
The Copy of this Programa Socio Ambiental – PSA was provided to the validator in digital and hard copy.							
Acceptance and Close out by Lead Assessor:				Date: 10/07/2008			
Information Provided: PP provides a copy of the Social – Environmental Program Information Verified: The Program provides indicate the social- environmental commitment of the PP						Verified Document Reference: Ref. 09 – CEL Socio – Environmental Program	
Reasoning for not acceptance or acceptance and close out: NIR04 CLOSED OUT: project participants have provided the copy of the Socio – Environmental Program.							

Date:	12/06/2008	Raised by:	Emilio Doens				
No.:	05	Type:	CAR	Issue:	Host Country wishes to be considered as project participant	Ref.:	Section A.3
Lead Assessor Comment:				Date: 12/06/2008			
Section A.3 of the PDD states that the party involved, El Salvador in this case, wishes to be considered as project participant. It was clarified during the site visit that since the hydroelectric is own by the Government project participants had assumed that this constituted that the host country would in consequence be a project participant. Corrections indicating otherwise are required in the PDD.							
Project Participant Response:				Date: 20/06/2008			

As stated above, it was clarified in the site visit that the host country prefers not to be considered a project participant, so it was changed in the PDD Microunidad Final 20.06.08 version 2.		
Acceptance and Close out by Lead Assessor:		Date: 20/09/08
Information Provided: PDD version 2 Information Verified: Section A.3 of PDD v.2		Verified Document Reference: Ref.01 - Microunidad version 02 dated 20.08.08
Reasoning for not acceptance or acceptance and close out: CAR05 CLOSED OUT: project participants have provided a new version of the PDD that accordingly states that the host country does not wish to be considered as project participant		

Date:	12/06/2008			Raised by:	Emilio Doens		
No.:	06	Type:	CAR	Issue:	Incorrect filled table on section A.4.3	Ref.:	Section 4.11
Lead Assessor Comment:					Date: 12/06/2008		
The table Table A.1 Estimated amount of emission reductions during the First Crediting Period is incorrect filled.							
Project Participant Response:					Date: 20/06/2008		
"Total number of crediting years" in Table A.1 was corrected in the PDD Microunidad Final 20.06.08 version 2.							
Acceptance and Close out by Lead Assessor:					Date: 10/07/2008		
Information Provided: PDD v.2 Information Verified: Table A.1 in section A.4.3.					Verified Document Reference: Ref.01 - Microunidad version 02 dated 20.08.08		
Reasoning for not acceptance or acceptance and close out: CAR06 CLOSED OUT: project participants have provided a new version of the PDD with the corrected table A.1 in section A.4.3.							

Date:	12/06/2008				Raised by:	Emilio Doens		
No.:	07	Type:	NIR	Issue:	Demonstration of Additionality. Request for evidence	Ref.:	Section B.4.3	
Lead Assessor Comment:					Date: 12/06/2008			
Footnote 20. Please provide copy of Decree number 146 (1994)								
Footnote 22. Please provide copy of the SIGET Agreement Number 29-E-2007								
Project Participant Response:					Date: 20/06/2008			
Footnote 20: The copy of Decree number 146 (1994) was handed to the validator in electronic means with the name of "Decreto 146 (1994).pdf"								
Footnote 22: The copy of the SIGET Agreement Number 29-E-2007 was provided to the validator in electronic means with the name of "29_E_2007_Acuerdo_precio_base_de_potencia_version_Final 0.pdf"								
Acceptance and Close out by Lead Assessor:					Date: 10/07/2008			
Information Provided: PP provides copy of the related Legislation of the Host country. Information Verified: The documents provides where review and corroborate the stated in PDD					Verified Document Reference: Decreto 146 (1994).pdf 29_E_2007_Acuerdo_precio_base_de_potencia_version_Final 0.pdf"			
Reasoning for not acceptance or acceptance and close out: NIR07 CLOSED OUT: project participants have provided copies of the host country legislation and of SIGET agreement.								

Date:	12/06/2008			Raised by:	Emilio Doens		
No.:	08	Type:	NIR	Issue:	Sources of data in Section B.6.2 Data and parameters that are available at validation	Ref.:	Section B.6.2
Lead Assessor Comment:				Date: 12/06/2008			
<p>a. The source of data used in the table for the description of the NCVi (http://www.eia.doe.gov/oiaf/aeo/index.html) has to be more specific. Please provide the name of the document or section as well as the page number.</p> <p>b. The source of data used in the table for the description of the EFi (IPCC Guidelines for National Greenhouse Gas Inventories, 2006) has to be more specific. Please provide the name of the document or section as well as the page number.</p>							
Project Participant Response:				Date: 20/06/2008			
<p>In the PDD Microundad Final 20.06.08 version 2:</p> <p>a. The source of data used in the table for the description of the NCVi was completed with specific information by providing the name of the document, section and direct link to the document.</p> <p>b. The source of data in the table for the description of the EFi, was completed with specific information, by detailing the Volume, Chapter and Table Number of the Document stated in the table.</p>							
Acceptance and Close out by Lead Assessor:				Date: 10/07/2008			
<p>Information Provided: PDD v.2 Information Verified: Section B.6.2., www.eia.doe.gov/oiaf/archive/aeo07/index.html Table 1.4 of Chapter 1 of Vol.2 (Energy) of the 2006 IPCC Guidelines on National Greenhouse Gas Inventories</p>						<p>Verified Document Reference: Ref.01 - Microundad version 02 dated 20.08.08</p>	
<p>Reasoning for not acceptance or acceptance and close out: NIR08 CLOSED OUT: project participants have provided a new version of the PDD that clearly references the sources for each parameter.</p>							

Date:	12/06/2008			Raised by:	Emilio Doens		
No.:	09	Type:	NIR	Issue:	Further evidence required in the section for Stakeholder's comments	Ref.:	Section D.1.3
Lead Assessor Comment:				Date: 12/06/2008			
<p>a. Similarly, the PDD says that "Around 50 participants attended to the stakeholder presentation representing a total of 35 organizations and institutions, located around the project site and some others around the country". Project participants should submit copies of the invitation and attendance list.</p> <p>b. Section D.1. The PDD argues that "In accordance with Articles 18 and 22 from El Salvador's Environmental Law, the project does not require the preparation of an Environmental Impact Assessment". Please provide copy of the MARN Resolution 10016-505-2007 with a precise indication to the text where this exemption is mentioned.</p> <p>c. Section E.1 mentions that "the stakeholder presentation was announced in the two most popular newspapers in El Salvador: "El Diario de Hoy" and "La Prensa Gráfica" on February 15th 2008, one week before the event". Copy of this announcement is required.</p>							
Project Participant Response:				Date: 20/06/2008			
<p>a. A copy of the original attendance list was provided to the validator as well as the reception list of the personal invitations.</p> <p>b. The copy of the MARN Resolution 10016-505-2007 was provided to the validator in electronic way with the name of Res Marn 100165052007.pdf with a precise indication to the text where this exemption is mentioned.</p> <p>c. The copy of these announcements was given to the validator.</p>							
Acceptance and Close out by Lead Assessor:				Date: 10/07/2008			

Reasoning for not acceptance or acceptance and close out: NIR09 was closed out. After project participant provided the following evidence: copy of the newspapers, the invitations sent out, the attendance list and the copy of the MARN resolution 10016-505-2007.							
Date:		02/12/2008		Raised by:		Emilio Doens	
No.:	CAR	Type:	10	Issue:	Changes to the PDD	Ref.:	Section A.2.1
Lead Assessor Comment:				Date: 02/12/2008			
A Corrective Action Request has been raised to ask project participant to make the following changes to the PDD:							
<ul style="list-style-type: none"> a. Mention the project activity name as it appears in LoA i.e."Addition of a power generation microunit at the 5 de Noviembre Power Plant" b. Provide the exact details regarding 5 de Noviembre Hydroelectric Power Plant i.e. present installation capacity. c. Provide the weblink to the source mentioned under foot note 12 and for table B.1 in PDD. If web link is not available, provide the scanned copy of the same. d. While discussing the additionality for small scale projects, provide reference to Annex 34 of EB35 and make sure that same will be followed. e. Elaborate the discussion for benchmark selection for the project activity. f. Since grid emission factor was calculated as CM using ex-ante approach; Section B.6.2 should include reg. OM, BM and CM data which were available at validation. g. Confirm in PDD how the import (for the project activity) from grid will be taken care? h. Confirm in PDD reg. the auxiliary consumption within the project boundary. i. Avoid use of sentence 'meters will be calibrated periodically' as periodically is very vague word. Pls. specify the calibration period. j. Indicate with an arrow (to indicate the reporting structure) in diagram B.2. k. Indicate which will be the likely date for the project will become operational. l. Clarify in the PDD how it will be monitored that the present project activity will be a run of river plant. 							
Project Participant Response:				Date: 05/12/2008			
<ul style="list-style-type: none"> a. <i>The project activity name is the same as the one in the PDD uploaded in the UNFCCC web site (http://cdm.unfccc.int/Projects/Validation/index.html).</i> b. <i>This was amended in the new version of the PDD according to the DOE requirements (Section A.2)</i> c. <i>This was amended in the new version of the PDD according to the DOE requirements (Section B.4, food note 13).</i> d. <i>This was amended in the new version of the PDD according to the DOE requirements (Section B.5, food note 15).</i> e. <i>This was amended in the new version of the PDD according to the DOE requirements (Section B.5)</i> f. <i>This was amended in the new version of the PDD according to the DOE requirements (Section B.6.2)</i> g. <i>This was amended in the new version of the PDD according to the DOE requirements (Section B.6.1)</i> h. <i>This was amended in the new version of the PDD according to the DOE requirements (Section B.6.1)</i> i. <i>This was amended in the new version of the PDD according to the DOE requirements (Table of the section B.7.1)</i> j. <i>This was amended in the new version of the PDD according to the DOE requirements (Section B.7.2 in diagram B.2)</i> k. <i>This was amended in the new version of the PDD according to the DOE requirements (Section C.1.1)</i> l. <i>This was amended in the new version of the PDD according to the DOE requirements (Section A.2)</i> 							
Acceptance and Close out by Lead Assessor:				Date: 11/12/2008			

Information Provided: PDD version 3 Information Verified: <i>(Explain how the information was verified)</i>	Verified Document Reference: Ref 1 PDD Version 3 dated 05/12/08
Reasoning for not acceptance or acceptance and close out: After PP made the necessary changes to the PDD and provided a new LoA to substitute the previous LoA which the name of the project had a slight difference with the one in the PDD. CAR 10 was closed out.	

Date:	02/12/2008	Raised by:	Emilio Doens
No.:	NIR	Type:	11
Issue:	Benchmark	Ref.:	Section B.4.6
Lead Assessor Comment:	Date: 02/12/2008		
In view of the fact the IRR for the project activity was not crossing the benchmark used i.e. 12% after considering the revenue from CDM. A New Information Request (NIR11) was raised to ask project participant to clarify how project proponent is considering CDM revenue as crucial for the project activity commissioning.			
Project Participant Response:	Date: 05/12/2008		
<i>It is important to stress that the 12% benchmark is stated by SIGET as a reference return both for private as well as public generators. While project's from the private sector may be more rigid about the financial return, those from public facilities tend to have additional concerns, such as providing cheap energy to poor areas. Therefore, the project participant is willing to undertake the project even if it's expected return falls slightly below the reference rate. Being a one digit figure, the 9.42%, no-CDM return is not considered to be "slightly below" the 12% benchmark. On the other hand, the 11.16% rate (which includes the income from the sell of CERs), is less than one point below the benchmark and is therefore considered a much more reasonable return.</i>			
Acceptance and Close out by Lead Assessor:	Date: 11/12/2008		
Information Provided: <i>(Describe the type of information provided for each Reference document, include extra lines for more references)</i> Information Verified: <i>(Explain how the information was verified)</i>	Verified Document Reference: <i>(Document reference name and number/date must comply with reference list in AR6)</i>		
Reasoning for not acceptance or acceptance and close out: NIR 11 was closed out after PP explained that even though it falls below the benchmark set by SIGET, the project with the income from the CER's revenue has a more reasonable return of 11.16% which is closer to the 12% set by SIGET.			

Date:	02/12/2008	Raised by:	Emilio Doens
No.:	NIR	Type:	12
Issue:	Sensitivity Analysis	Ref.:	Section B.4.6
Lead Assessor Comment:	Date: 02/12/2008		
A New Information Request (NIR12) was raised to ask project participant to justify why +/-10% variation was considered reasonable while conducting the sensitivity analysis.			
Project Participant Response:	Date: 05/12/2008		
<i>+/- 10% variations were assumed as suggested in the "Guidance on the Assessment of Investment Analysis" (Version 02): "As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and -10%" (page 4).</i>			
Acceptance and Close out by Lead Assessor:	Date: 11/12/2008		
Information Provided: Information Verified: <i>(Explain how the information was verified)</i>	Verified Document Reference: <i>(Document reference name and number/date must comply with reference list in AR6)</i>		

Reasoning for not acceptance or acceptance and close out:
PP explained that +/- 10% variations were assumed as per the Guidance on the Assessment of Investment Analysis, hence NIR12 was closed out.

Date:	02/12/2008	Raised by:	Emilio Doens
No.:	NIR	Type:	13
Issue:	Section C	Ref.:	Section B.4.3
Lead Assessor Comment:	Date: 02/12/2008		
A New Information Request is raised to ask Project Proponent to clarify the timeline and reasoning of application for LoA before winning the BID, since the LoA for the project activity was received on 28 th May 2008, and the MoC was signed on 30 th June 2008 while as per section C of PDD project was awarded to Project Proponent through a BID on 14 th Oct. 2008.			
Project Participant Response:	Date: 05/12/2008		
<i>The fact that CEL decided to pursue CDM validation and registration even before awarding the contract of the project by means of a public bid shows that CDM revenues are essential to the project independently of the firm which is awarded the construction bid. It is also evidence of early consideration of the said incentives.</i>			
Acceptance and Close out by Lead Assessor:	Date: 11/12/2008		
Information Provided: <i>PDD V.3</i>	Verified Document Reference: The above explanation was included on Section B.5 of the PDD (version 3).		
Information Verified: <i>(Explain how the information was verified)</i>			
Reasoning for not acceptance or acceptance and close out: A New Information Request (NIR 13) was raised to ask project participant to clarify why CDM validation had started before the project was awarded through a bid. PP explained that since CDM revenues are essential for the project activity to take place, CEL decided to go ahead and pursue CDM validation independently of the firm which is awarded the construction during the bid. This is also proof of CDM consideration. NIR 13 was closed out.			

Date:	02/12/2008	Raised by:	Emilio Doens
No.:	CAR	Type:	14
Issue:	Excel sheet for ER calculation	Ref.:	Section B.7.2
Lead Assessor Comment:	Date: 02/12/2008		
A Corrective Action Request (CAR14) has been raised to ask project participant to make the following changes to the Excel sheet for ER calculation:			
<ul style="list-style-type: none"> a. Correct the cell F6 in workbook 'Data' b. Provide the yearly estimation of ERs as presented in PDD section A.4.3 c. Provide the source or traceability against the electricity generation from project activity. 			
Project Participant Response:	Date: 05/12/2008		
<ul style="list-style-type: none"> a. <i>Cell F6 in workbook "Data" has been corrected in the latest version of the file (Ref 08- El Salvador Baseline 2007- 01 04 08)</i> b. <i>The new version of the document includes a table with the requested format in workbook "ER".</i> c. <i>As the unit will not have a specific rate until the bid is awarded, 2160 MWh / year was determined as a reasonable expected value for a unit of at least 500 kW. Assuming this capacity would imply a 49.31% capacity factor in order to achieve the yearly 2160 MWh. On the other hand, a 600 kW unit would demand a smaller capacity factor (41.1%).</i> 			
Acceptance and Close out by Lead Assessor:	Date: 11/12/2008		
Information Provided: CER's calculation spreadsheet	Verified Document Reference: Ref 08 - El Salvador Baseline 2007- 07 04 08		
Information Verified: <i>(Explain how the information was verified)</i>			

Reasoning for not acceptance or acceptance and close out:

CAR14 was closed out after project participant provided the document with the necessary changes.

Date:	02/12/2008	Raised by:	Emilio Doens
No.:	CAR	Type:	15
Issue:	Investment Analysis	Ref.:	B.4.6
Lead Assessor Comment:	Date: 02/12/2008		
<p>A Corrective Action Request (CAR15) has been raised to ask project participant to make the following changes to the Excel sheet for Investment Analysis:</p> <ul style="list-style-type: none"> a. Use the globally accepted terms to represent IRR and NPV in workbook 'FF' specially cell B37 to B40. b. Source to benchmark selected for the project activity needs to provide in excel sheet. 			
Project Participant Response:	Date: 05/12/2008		
<p><i>Both changes have been introduced to the new version of the excel sheet for Investment Analysis (Ref 07):</i></p> <ul style="list-style-type: none"> <i>a. Workbook "FF" has been modified with the globally accepted terms.</i> <i>b. Workbook "Assumptions" has been modified to include the source for the benchmark selected (Cell A.31).</i> 			
Acceptance and Close out by Lead Assessor:	Date: 12/12/2008		
Information Provided:	Verified Document Reference:		
<ul style="list-style-type: none"> • Investment Analysis Spreadsheet 	Ref 07-Aditionality Microunidad 1abr08_eng		
Information Verified:			
<i>(Explain how the information was verified)</i>			
Reasoning for not acceptance or acceptance and close out:			
CAR15 was closed out after project participant provided the document with the necessary changes.			

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name:

SGS Affiliate:

Status

- Product Co-ordinator ☒
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☒

Validation

Verification

- Local Assessor ☒
- Lead Assessor ☒
- Assessor ☐
- / Trainee Lead Assessor ☐

Scopes of Expertise

- | | |
|--|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable) | <input checked="" type="checkbox"/> |
| 2. Energy Distribution | <input type="checkbox"/> |
| 3. Energy Demand | <input type="checkbox"/> |
| 4. Manufacturing | <input type="checkbox"/> |
| 5. Chemical Industry | <input type="checkbox"/> |
| 6. Construction | <input type="checkbox"/> |
| 7. Transport | <input type="checkbox"/> |
| 8. Mining/Mineral Production | <input checked="" type="checkbox"/> |
| 9. Metal Production | <input type="checkbox"/> |
| 10. Fugitive Emissions from Fuels (solid,oil and gas) | <input type="checkbox"/> |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/> |
| 12. Solvent Use | <input type="checkbox"/> |
| 13. Waste Handling and Disposal | <input type="checkbox"/> |
| 14. Afforestation and Reforestation | <input type="checkbox"/> |
| 15. Agriculture | <input type="checkbox"/> |

Approved Member of Staff by:

Date:

Statement of Competence

Name:

SGS Affiliate:

Status

- Product Co-ordinator ☐
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☐

Validation

Verification

- Local Assessor ☒
- Lead Assessor ☒
- Assessor ☒
- / Trainee Lead Assessor

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) ☐
2. Energy Distribution ☐
3. Energy Demand ☐
4. Manufacturing ☐
5. Chemical Industry ☐
6. Construction ☐
7. Transport ☐
8. Mining/Mineral Production ☐
9. Metal Production ☐
10. Fugitive Emissions from Fuels (solid,oil and gas) ☐
11. Fugitive Emissions from Production and ☐

Consumption of Halocarbons and Sulphur Hexafluoride

12. Solvent Use ☐
13. Waste Handling and Disposal ☒
14. Afforestation and Reforestation ☐
15. Agriculture ☐

Approved Member of Staff by

Date: